

# Using Writing in Mathematics

Answer Key



Handwritten-style text, possibly a list or notes, located in the bottom right corner of the page.

Handwritten-style text, possibly a list or notes, located in the bottom right corner of the page.



© 2024 ETC Montessori® All rights reserved.

Republication or redistribution of ETC Montessori® content is expressly prohibited without the prior written consent of the publisher. ETC Montessori® shall not be liable for any errors or delays in the content, or for any actions taken in reliance thereon.

ETC, ETC Montessori and the ETC Montessori Digital logo are registered trademarks of ETC Montessori LLC in the United States and other countries.

# Common Core State Standards (CCSS)

## Mathematics Standards

### *Operations & Algebraic Thinking (Grades 4-6)*

**CCSS.MATH.CONTENT.4.OA.A.3:** Solve multi-step word problems using addition, subtraction, multiplication, and division. This standard aligns with prompts that require students to calculate total costs, divide items, and plan using operations to solve real-world problems.

**CCSS.MATH.CONTENT.5.OA.B.3:** Analyze patterns and relationships. Many prompts involve identifying, describing, and creating patterns, particularly in tasks like arranging plants, designing layouts, and planning repetitive events.  
Number & Operations - Fractions (Grades 4-5)

**CCSS.MATH.CONTENT.4.NF.B.3:** Understand addition and subtraction of fractions. For prompts like the pizza party or portioning food, students add and subtract fractions to divide items fairly.

**CCSS.MATH.CONTENT.5.NF.B.6:** Solve real-world problems involving multiplication of fractions and mixed numbers. Several prompts involve calculating portions and areas using fractions, helping students apply fractional reasoning practically.  
Measurement & Data (Grades 4-6)

**CCSS.MATH.CONTENT.4.MD.A.3:** Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. This is met in prompts like the room or garden design, where students calculate dimensions and optimize space.

**CCSS.MATH.CONTENT.5.MD.C.3-5:** Understand and apply concepts of volume and relate it to multiplication and addition. The "Volume Valley" prompt, where students calculate space for building designs, aligns well with this standard.

**CCSS.MATH.CONTENT.6.SP.B.5:** Summarize and describe distributions. Prompts involving data collection, like surveying favorite activities, address this standard by requiring students to organize, analyze, and present data.

## Language Arts Standards

### *Reading Informational Text (Grades 4-6)*

**CCSS.ELA-LITERACY.RI.4-6.7:** Interpret information presented visually (such as graphs, timelines, or charts) and explain how it contributes to understanding text. Prompts that ask students to create graphs or charts to display data (e.g., time spent on activities) meet this standard.  
Speaking & Listening (Grades 4-6)

**CCSS.ELA-LITERACY.SL.4-6.4:** Report on a topic or text in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes. After completing writing prompts, students can discuss or present their work, explaining their mathematical reasoning and creative decisions.

## Writing Standards

### *Text Types and Purposes (Grades 4-6)*

**CCSS.ELA-LITERACY.W.4-6.2:** Write informative/explanatory texts to examine a topic and convey ideas and information clearly. Many prompts, especially those involving math-supported creative writing or explanatory pieces like “Mapping My Future Goals,” align well with this standard as students write to explain and explore mathematical ideas within a broader narrative.

**CCSS.ELA-LITERACY.W.4-6.1:** Write opinion pieces on topics or texts, supporting a point of view with reasons and information. For example, prompts that require decision-making in a scenario, like the “Budgeting Bazaar” or “School Fair Planning,” encourage students to explain their reasoning and choices, supporting their decisions with math-based evidence.

### *Production and Distribution of Writing (Grades 4-6)*

**CCSS.ELA-LITERACY.W.4-6.4:** Produce clear and coherent writing appropriate to task, purpose, and audience. Prompts are designed to be grade-appropriate while encouraging logical organization and clarity.

**CCSS.ELA-LITERACY.W.4-6.5:** With guidance and support, develop and strengthen writing as needed by planning, revising, and editing. Writing-to-learn prompts encourage students to draft, review, and refine their explanations and reflections on mathematical processes.

### *Research to Build and Present Knowledge (Grades 4-6)*

**CCSS.ELA-LITERACY.W.4-6.7:** Conduct short research projects that build knowledge about a topic. Prompts like “A Nature Walk Journal” or “Planning a Community Fundraiser” may involve research or gathering information, whether it’s estimating costs or learning about plants in a garden.

## Science Standards (NGSS)

**Analyzing and Interpreting Data (4-6):** Many prompts involve analyzing or interpreting data, such as graphing favorite activities, counting items in nature, or measuring for a garden layout. These activities align with NGSS standards for data analysis, a key practice in the sciences.

**Using Mathematics and Computational Thinking (4-6):** NGSS encourages the use of math to support scientific inquiry. Prompts like “Surveying and Analyzing Favorite Activities” or “Designing Your Dream Room” use mathematical reasoning to enhance planning and support scientific and engineering thinking.



## Rubric for Writing-to-Learn Math Prompts

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
<b>Mathematical Understanding</b>	Clearly and accurately demonstrates math concepts; solution is thorough and correct	Demonstrates math concepts with minor errors or lacks some detail in explanation	Demonstrates partial understanding with some errors or unclear reasoning	Shows limited understanding of math concepts; major errors present
<b>Explanation &amp; Reflection</b>	Reflects deeply on the math process, describing problem-solving steps clearly	Provides a clear explanation but lacks some depth or reflection	Explanation is incomplete or lacks clarity; reflection is limited	Minimal explanation or reflection, difficult to understand
<b>Use of Math Vocabulary</b>	Consistently uses correct math terms to support the explanation	Uses correct math terms most of the time with minor errors	Uses some math terms but inconsistently or incorrectly	Limited or incorrect use of math terms
<b>Writing Clarity &amp; Structure</b>	Well-organized, clear, and logically structured; writing is easy to follow	Organized and mostly clear, but some parts may lack structure or clarity	Shows some organization but lacks clear flow in places	Poorly organized and difficult to follow

## Rubric for Math-Supported Creative Writing Prompts

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
<b>Creative Expression</b>	Story is highly imaginative and engaging, with well-developed details	Story is engaging and creative, with some supporting details	Story has some creative elements, but lacks depth or detail	Story lacks creativity and detailed description
<b>Mathematical Integration</b>	Math concepts are well-integrated and enhance the story	Math concepts are present and mostly support the story	Math concepts are used but feel disconnected or are minimal	Little or no use of math concepts to support the story
<b>Accuracy of Math Concepts</b>	All math concepts and calculations are accurate and well-explained	Mostly accurate math with minor errors	Some errors in math, or explanations lack clarity	Significant errors in math or no explanations provided
<b>Writing Clarity &amp; Organization</b>	Writing is clear, well-organized, and flows logically	Mostly clear and organized; minor issues with flow	Writing has some organization, but lacks clear flow	Writing is disorganized and difficult to understand

## Rubric for Math-Enhanced Descriptive and Reflective Writing Prompts

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
<b>Depth of Reflection</b>	Demonstrates a thorough and thoughtful reflection on the topic	Shows thoughtful reflection, with some depth	Reflection is present but lacks depth or thoroughness	Minimal reflection or lacks insight
<b>Use of Math to Support Reflection</b>	Math concepts effectively enhance and support the reflection	Math concepts are used appropriately, mostly supporting the reflection	Math is somewhat used, but does not fully support the reflection	Little or no math used to support reflection
<b>Clarity of Mathematical Explanation</b>	Math explanations are clear and logical, with no errors	Math explanations are mostly clear, minor errors present	Math explanations are somewhat unclear or contain errors	Math explanations are unclear or missing
<b>Writing Structure &amp; Coherence</b>	Writing is well-organized, coherent, and easy to follow	Mostly well-organized with minor issues in coherence	Some organization, but lacks clear flow in places	Disorganized and difficult to follow

## Rubric for Writing-First Math-Supported Creative Planning Prompts

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
<b>Creative and Practical Planning</b>	Planning is detailed, imaginative, and practical; ideas are well-developed	Planning is creative and practical with good detail	Planning has creative aspects but lacks full practicality or detail	Limited creativity or practicality in planning
<b>Mathematical Support for Planning</b>	Math is used effectively to enhance planning; calculations are accurate	Math supports the planning process with minor calculation errors	Math is minimally used and may lack accuracy or relevance	Little or no math used to support the planning
<b>Detail in Budgeting/Measurements</b>	Details are thorough and clear; all costs, time, or measurements are well-explained	Details are mostly clear, with minor omissions or unclear parts	Details are provided but lack depth or clarity in parts	Details are missing or unclear, with significant gaps
<b>Writing Organization &amp; Flow</b>	Writing is well-structured, logically organized, and easy to follow	Mostly organized with minor issues in flow or coherence	Some organization, but lacks flow in places	Disorganized and difficult to understand



# ETC<sup>®</sup> MONTESSORI

ETC Montessori<sup>®</sup>

220 Ibis St. • Webster • TX • 77598

T: 877 409 2929 • F: 877 409 7402

Intl: 281 984 7213

[ETCmontessoriOnline.com](http://ETCmontessoriOnline.com)